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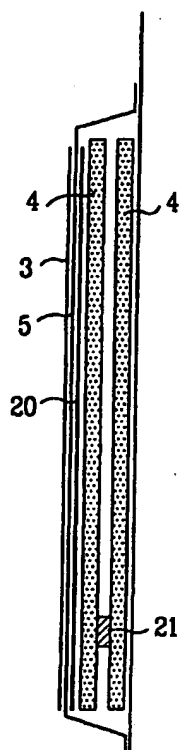
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[Continued on next page]

(54) Title: **TRAP**



(57) Abstract: The present invention relates to a trap for CO₂-attracted insects, such as mosquitos and other insects attracted by a volatile agent, the trapping taking place by means of an adhesive layer, whereby it comprises a) an adhesive layer; and b) an attractant releasing spongy material.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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TITLE**TRAP****DESCRIPTION****5 Technical field**

The present invention relates to a trap for CO₂-attracted insects, such as mosquitos and other insects attracted by a volatile attracting agent, the trapping taking place by means of an adhesive layer.

- 10 The object of the present inventions is to obtain a possibility of obtaining a rational and well-functioning insect trap, particularly for indoor use and in particular for catching mosquitos and flies.

Background of the invention

- 15 It is previously known insect traps, in particular fly-traps comprising a substrate upon which there is applied a non-setting, non-hardening glue, such as a melt-glue for catching flies. Such substrate may take the form of wound paper strips drawn out off a container, or the form of paper sheets hung in the neighbourhood of windows or places where flies gather. It is also known sticky ropes or lines for catching flies, in particular in cow stalls, which ropes
20 can be fed from a storage roll.

It is also known that certain insects are attracted by the gaseous carbon dioxide present in human exhaust air.

- 25 WO 99/26471 discloses a mosquito trap comprising a chemical attractant in combination with a physical attractant, whereby the chemical attractant is carbon dioxide emitted from a fermentation chamber into said physical attractant being a black painted tube or cylinder.

- US-A-5,189,830 relates to tick trap comprising a carbon dioxide cannister which is
30 periodically activated by batteries to emit carbon dioxide.

Japanese patent application JP-A-10229801 relates to carbon dioxide emitting trap the carbon dioxide being generated from a generator such as a carbon dioxide containing vessel,

such as compressed carbon dioxide containing container.

This known devices either call for electricity, or other means that make them to complicated to be used in daily life in homes, where one wants a fairly longtime release of an attractant
5 without any intervention.

Description of the present invention

It has now surprisingly been shown possible to be able obtain an insect trap for CO₂-
attracted insects or volatile agent attracted insects, which trap is characterized in that it
10 comprises

- a) an adhesive layer; and
- b) an attractant releasing spongy material.

Further characteristics are evident from the accompanying claims.
15

By means of the present invention it is now possible to catch CO₂-attracted insects, such as mosquitos and others, in particular indoors, as well as other insects attracted by volatile agents, such as flies attracted by e.g., decomposing foodstuffs..

20 The invention will now be described more in detail in the following with reference to the accompanying drawing, which show some preferred embodiments of the invention. In the drawing

FIG. 1 shows a front view of a trap of the invention;

FIG. 2 shows a cross-section of the trap according to Fig. 1;

25 FIG. 3 shows a front view of a second embodiment of the invention; and

FIG. 4 shows a cross-section of the trap according to Fig. 3.

1 denotes a liquid tight case provided with a hanger 2 or double-sided tape provided with a sticky surface layer to attach the trap to a surface after having removed a covering tape. In
30 pre-use condition the trap is covered with a peel-off cover 3. Contained in the case are one or more thin sponges 4, each forming a substrate. A non-setting, non-soluble adhesive layer 5 has been provided on the top of the casing, which same surface carrying said layer 5 is provided with a great number of pin-prick perforations 6, such as 30 to 40 per 6.25 cm². The

perforations reach into the substrate which is, as mentioned above, a sponge material having been impregnated with a attracting composition comprising synthetic musk, a mixture of yeasts (baker's yeast, brewer's yeast), or CO₂-producing reagents, or other volatile agents for attracting insects, such as flies and mosquitos. The spongy material can be a

5 polyurethane material, a foamed polyethylene material, or a polypropylene material, as well as any other spongy foamed naturally occurring or synthetic spongy material. The material should preferably have through-going capillaries, or have an open cellular structure to allow emittance of carbon dioxide or other volatile gas from the interior to the surface for emission through the pin-prick holes mentioned above.

10

CO₂-producing reagents are e.g., sodium carbonate, sodium bicarbonate, potassium carbonate, potassium bicarbonate, magnesium carbonate, calcium carbonate and optionally an organic acid, which reagents are activated to produce CO₂ when brought into contact with water. The attracting composition is either provided with water from the beginning in
15 the form of a collapsible capsule brought into the case at production, or is activated with an addition of water, after having removed the peel-off cover 3 by immersing the case into water and squeezing the same to dampen the interior sponges 4 to start the CO₂-production. Thus the carbon dioxide production can take place from a carbonate containing tablet being placed inside the spongy material and having been wetted to start production of carbon
20 dioxide.

20

The CO₂-production reagent, preferably sodium carbonate or sodium bicarbonate, is present in the case as a tablet 21 containing 10 to 30 mg active compound, which is enough to produce CO₂ for 5-8 hrs. When using the spongy material the total time of emission will be
25 extended up to 36 hrs, as the emission takes place slow through the material.

25

The sponge(-s) 4 may further be impregnated with a mixture of yeasts, such as baker's yeast and/or brewer's yeast in an amount of 15 to 30 mg per case. The yeasts are resting until moistened and their CO₂-production is well established after a few hours, when the CO₂-
30 tablet has finished production of CO₂. The CO₂-production related to the yeast addition stays for at least 20 hrs.

30

In a further embodiment one or more included water capsules can provide nutrients to the

yeasts thereby giving the yeasts an opportunity to survive and be CO₂-producing for a longer time, such as 2-5 days.

The musk oil is added to the sponge material in an amount of a few drops and is present to
5 mimic the human body odours, as it is known that e.g., mosquitos are attracted to warm body or to warm feet.

In order to further attract the insects the case may contain a fluorescent paper 20 emitting an attracting light.

10

To operate the trap the outer paper cover is removed (peeled off) and the trap is immersed into water for a short while to absorb water to activate the ingredients. Excess water is squeezed out off the sponges just to keep the sponges dampen. The trap is then hung up in an appropriate place, such as a bed-room or living room or a veranda. Upon activation the
15 yeasts will produce carbon dioxide in a small and gentle fashion attracting e.g., mosquitos present, which will then be trapped and caught by the sticky, non-setting glue adhesive.

When the adhesive surface has been covered by insects the case is removed and replaced by a new one.

20 Figs 3 and 4 disclose an embodiment of the invention wherein a continuous film 7 is present between two spindles 8, 13. The film 7 is drawn from a lower spool 11 through a bottom V-shaped jaw 9 over a "window" 12 to an upper spindle 13. Each exposure of film 7 is provided with a pouch 10 of sticky semi-liquid aqueous gel at the leading edge which pouch is squeezed when the film is passed through the jaw 9 whereby the gel is distributed over
25 the entire film 7, activating the attracting composition. As the paper film is wound forward the exposed area is pulled through a second jaw into the "used" reservoir.

The combination of yeasts producing carbon dioxide and musk, will attract mosquitos and other insects normally attracted by the human body vapours and human outlet air.

CLAIMS

1. Trap for CO₂-attracted insects, such as mosquitos and other insects attracted by a volatile attracting agent, the trapping taking place by means of an adhesive layer, characterized in that it comprises
 - 5 a) an adhesive layer; and
 - b) an attractant releasing spongy material.
2. Trap according to claim 1, wherein the attractant is CO₂.
- 10 3. Trap according to claims 1-2, wherein CO₂-releasing composition comprises carbon dioxide producing reagents.
4. Trap according to claim 3, wherein the CO₂-releasing composition further comprises a mixture of yeasts.
- 15 5. Trap according to claim 4, wherein CO₂-releasing composition comprises carbon dioxide producing reagents and a mixture of yeasts as well as a mixture of synthetic musks.
6. Trap according to claim 1, wherein attracting composition comprises synthetic musks.
- 20 7. Trap according to one or more of the preceding claims, wherein a fluorescent surface (20) is present.
8. Trap according to claim 1, wherein the attractant is a volatile insect attracting agent
- 25 released through the spongy material.

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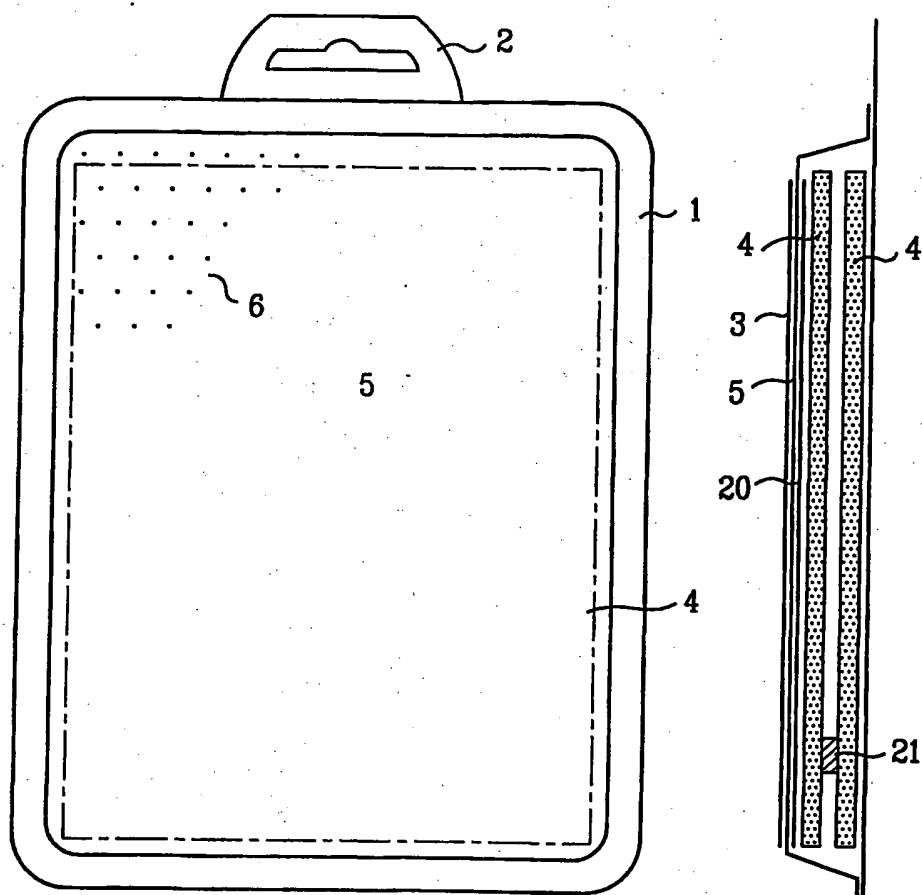


FIG. 1

FIG. 2

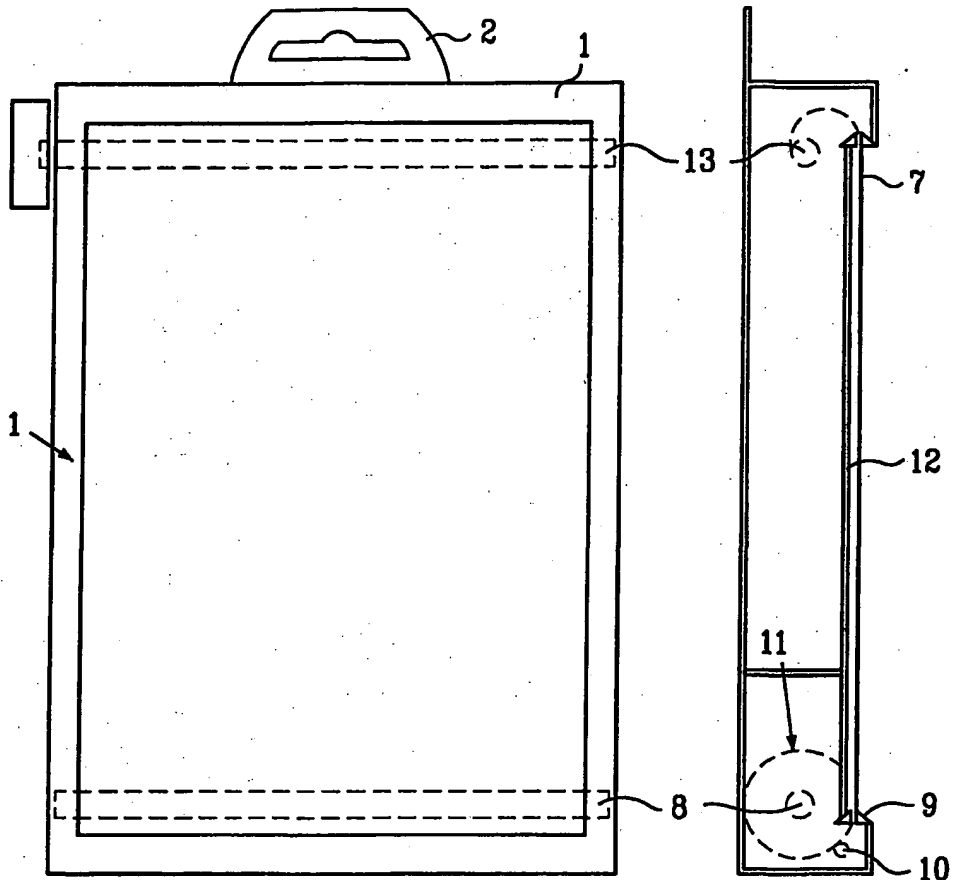


FIG.3

FIG.4

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A01M 1/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4649861 A (M. ELKINS ET AL), 17 March 1987 (17.03.87), claims 1,2,6, abstract	1,6,8
A		2-5,7
A	WO 9926471 A1 (TRAPOMOSS LTD), 3 June 1999 (03.06.99), abstract	1-8

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

- * Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
 - "B" earlier application or patent but published on or after the international filing date
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 - "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 - "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 - "&" document member of the same patent family

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